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MEDICAL NEWS LETTER

Vol. 42

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No. 10

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Policy

The U. S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

Change of Address

Please forward changes of address for the News Letter to: Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland, 20014, giving full name, rank, corps, and old and new addresses.

The issuance of this publication approved by the Secretary of the Navy on 28 June 1961.

TROPICAL MEDICINE SYMPOSIUM

U. S. Naval Hospital, Oakland, California
14 - 15 March 1963

Special Announcement on Tropical Medicine Articles

A Symposium on Tropical Medicine was held at the U. S. Naval Hospital, Oakland, Calif., 14 and 15 March 1963, under sponsorship of the Commanding Officer, Rear Admiral Thomas G. Hays MC USN. In his letter to the Bureau announcing the Symposium, Admiral Hays commented as follows: "A reorientation of Naval Medical Officers in Tropical Medicine is timely. Worldwide commitments of U. S. Naval personnel and the ever present possibility of introduction of so-called tropical diseases into the continental United States by travelers make familiarity with these disorders, as well as their prevention and control, highly desirable. Outstanding speakers from the University of California Medical Center, Stanford University School of Medicine, U. S. Public Health Service (San Francisco Field Station, Communicable Disease Center Laboratory) and the U. S. Naval Hospital, Oakland—each an expert in his chosen topic with long experience in the field—were invited to participate."

At the time of his retirement, Admiral Hays was relieved by Rear Admiral Cecil L. Andrews MC USN as Commanding Officer of the USNH Oakland, and District Medical Officer, 12th Naval District, San Francisco. Recently, a request was submitted to Admiral Andrews for permission to reproduce the lectures of the Symposium in the U. S. Navy Medical News Letter. He replied: "The proposal to publish the articles serially in the U. S. Navy Medical News Letter is concurred in by this command. The approval and authorization for such publication has been obtained from each contributor to the Symposium."

We are indeed grateful to Admiral Andrews for this action, since the series of lectures is considered to represent some of the best thoughts available in Tropical Medicine today. We are also indebted to CAPT Arthur J. Draper MC USN, Chief of Medicine at USNH Oakland, who has edited all of the Tropical Medicine Symposium lectures from tape-recordings. Dr. Draper was Chairman of the Symposium and his timely action in preserving this collection of valuable information for the good of others is sincerely admired and appreciated. And finally, our thanks go to all lecturers at the Symposium for permission to publish their papers in this medium. —Editor

NOTE: Information has been received from Admiral Andrews that he is forwarding 25 copies of the collected papers of the above Symposium to CAPT Jack W. Millar MC USN, Director, Preventive Medicine Division, BuMed, for distribution to selected preventive medicine and research activities of the Navy, pursuant to Dr. Millar's request.

Problems of Disease in Military Operations
in Tropical Areas

Arthur P. Long MD, Dr. PH, Clinical Professor of Medicine (Environmental), University of California Medical Center, San Francisco, Calif.

The primary mission of a military medical service is to maintain effective military manpower, a positive mission. Treatment of the sick is a negative mission. In conjunction with the first is a very important secondary mission, to study, understand, and to evaluate the various causes for noneffective or lost manpower and to provide this knowledge to those responsible for military operations. Military physicians have a responsibility to the line, to the command, to advise them what to expect in the way of casualties for medical reasons, and to assist them in applying proper procedures to prevent these casualties.

What are the main causes of casualties in military operations? Battle casualties are extremely important in individual operations, whether on a large or small scale, and may indeed constitute the most important determinant of the availability of effective manpower. In the over-all picture, however, this is not true. In World War II, battle injuries and wounds caused a loss in the Army of 72,000,000 man-days; non-battle conditions accounted for four times that many, 286,000,000 man-days. In the Pacific Theatre, 1942 - 1945, 82% of hospital admissions were for disease, 13% for non-battle injuries, and only 5% because of wounds. In the European Theatre, June 1944 - May 1945, a period not of buildup but of active operations, 63% of admissions were for disease, 14% for non-battle injuries, and less than a quarter for battle injuries. In Korea, July 1950 - July 1953, where operations were conducted in a less well sanitized area than in Europe, there was a slightly higher proportion of admissions for disease. The British report similar figures for the Suez operations. Disease, then, is the greatest cause of military manpower loss.

What is the special significance of disease and non-battle injuries? There are several areas and categories of special significance. The first involves those disorders with a high rate of incidence affecting large numbers of people for a short period of time, respiratory infections, enteric infections, malaria, or dengue. The single biggest problem facing military operations in the field, in the tropics, or elsewhere, continues to be enteric infection including bacillary dysentery, shigellosis, and those due to enteric viruses.

Another category of significant disease is comprised of those conditions which occur with moderately low attack rates, but which cause prolonged illness and recovery, notably infectious hepatitis and rheumatic fever.

Diseases are particularly important that tend to occur at critical times and places where loss of manpower can ill be afforded, such as on an early landing operation. Certain diseases lend themselves to this sort of thing, especially scrub typhus and malaria. Troops put ashore on unfamiliar territory in a poor environment with unsatisfactory sanitation contract enteric

infections. Dengue may also occur at such times. The scope of this problem is well expressed in a report written from the scene of such an occurrence in the South Pacific in World War II. "The first infantry regiment went ashore and bivouacked on abandoned village areas and gardens which must have been veritable anthills of infected mites. Subsequently, patients with multiple eschars were plentiful, including one with the almost unbelievable number of nine. Onset in the first patient, the regimental commander himself, was 6 days after landing. In 20 days, 403 men of this regiment were hospitalized, including many key commissioned and noncommissioned officers." The disease, of course, was scrub typhus. Had the enemy been present in force in adjoining areas, there could have been a strategic disaster for the beachhead!

There are other reasons why diseases are significant, among which fear and special concern for the unknown or the unusual are very important. Encephalitis does not occur frequently, but it carries a great weight of significance; concern, worry, and the great amount of activity in the care of patients and the study of the disease cause much loss of time and manpower in all echelons. Poliomyelitis, also, has no military significance statistically, but it assumes great significance in any military installation overseas because it worries the admirals and the generals. When they worry, all worry! Meningitis is another such example; two cases of meningitis will upset a post much more than fifty cases of enteric infection or even half a dozen cases of hepatitis. New and unknown conditions like hemorrhagic fever cause similar concern.

Aside from respiratory diseases which need not be stressed because of their familiarity, the biggest single problem among diseases causing special concern is enteric infection. This, together with malaria, scrub typhus, dengue, and arborvirus disease will be encountered in any overseas operation. In the tropics, there occur disorders that are familiar, plus a number which are not. The unknown and the unusual must be looked for, but not to the exclusion of other disorders. Overseas, however, new things are encountered in high incidence. In overseas operations, the "pediatric principle" of military medicine must be applied. By this we mean that American youths who have grown up in a highly sanitary environment behave like children when they encounter an overseas environment. Immunologically, that is, they are children. Therefore, the medical officer should look for children's diseases among military personnel.

Future operations can be predicted to bring environmental situations unfavorable to the health and well being of our forces. Sanitation will be poor. The water supply will be non-potable, insufficient, or overabundant. Too little water is a terrific hazard in itself; water washes away more infection than it transmits! Waste disposal will be inadequate; washing and bathing facilities, difficult. Food handlers will be "UN", especially overseas. By "UN" we mean UNeducated, UNclean, UNbelieving, and UNreliable. Because we cannot afford to use our own military food handlers due to the manpower problem, we tend to use native food handlers. The greatest transmission of enteric infection is because of these people; to educate them in the time available is very difficult.

Extremes of climate in tropical areas will speak for themselves, but biologic features of these areas need emphasis. Animal reservoirs of disease will be there, as will the vectors required for transmission. Mosquitoes for dengue and malaria, fleas and mites for the various forms of typhus, flies for dysentery or African trypanosomiasis—all will be there. Man, be it remembered, is not necessary for the perpetuation of many disease cycles; he is an accident in the cycle of scrub typhus, yellow fever, and African sleeping sickness. He may, therefore, become infected in regions where human infection has not hitherto occurred!

Then, there are familiar conditions which have a higher incidence or more severe manifestations in the tropics—diarrheal disease, respiratory infections, or neuropsychiatric problems. These must be anticipated.

Current military planning calls for evacuating casualties rapidly and for great distances, but casualties evacuated far away may not return to duty. "If you evacuate a casualty over water, you will never get him back to the line" is an old Army saying! This policy involves use of the platoon system whereby recruits en masse, whole new organizations, replace men trained by combat in a given area. But military experience in an area may be transcended in importance by immunologic experience. In Korea, United States forces became heavily engaged in June and July of 1950. During this initial period of the fighting, the military disease rate was 14,000 per 1000 per annum; battle casualties were high as well. Both rates later declined and flattened out. If it had been possible to evacuate whole organizations and bring in new outfits to replace them, the condition of high infection-rate would have tended to perpetuate itself. The decline in disease rate is not entirely attributable to specific immunity, though, to recollect the pediatric principle, it is partly so. Getting used to the environmental situation, becoming accustomed to living in the field, these are also important in reducing disease rate. The high initial morbidity represented mostly enteric infection; there was little malaria. Arborvirus disease was fairly common. Three hundred cases of encephalitis occurred, but more than 50% of personnel admitted to hospital were shown to have developed antibodies against the disease. More than 50% of the military personnel in Korea, in other words, had subclinical infections with Japanese B encephalitis.

Diseases have been shown to be the major causes for loss of military manpower. Provision of medical treatment facilities as far forward as possible would avoid evacuation of casualties to the distant rear with resultant loss of manpower. Research and development must go on, but application of knowledge is essential. Education, training, and indoctrination must be carried on. Where discipline is necessary for proper application of public health measures, the matter must be carried directly to military commanders so that they may apply it. Military physicians have the responsibility to indoctrinate line commanders so that they, in turn, can indoctrinate the individual serviceman; each will then have the knowledge and will to protect his own health and that of his fellows.

* * * * *

The Geography of Natural Foci of Infection*

J. Ralph Audy MB PhD, Professor of Tropical Medicine and Human Ecology, Hooper Foundation, University of California Medical Center.

This presentation concerns the reasons for localization of those diseases which are particularly localized—of which there are many—and the importance of such localization to physicians who treat patients exposed to infection in those areas. Many tropical diseases are localized geographically and in certain kinds of terrain. Immigrants from abroad, or members of the Armed Forces who have been assigned to infected areas may come down with exotic diseases; a history of exposure is essential to proper diagnosis. Many "place diseases" occur in particular localities, often unbeknownst to people frequenting them. Outbreaks of epidemic proportions may result.

The association of a particular disease with certain terrain has been observed for a long time. Ague, or malaria, was associated in England with the fen district. Paludism, in fact, was a name commonly used to denote malaria. Japanese River fever and scrub typhus are descriptive names for a variety of rickettsiosis. Both names refer to the kinds of places in which infected foci are found.

Most highly localized diseases are, in fact, zoonoses, infections transmissible from animal to man directly, as in leptospirosis or through an intermediate agent such as an insect vector. The particular focus tends to have at least two organisms—often a third. The first agent is the pathogen; the second, the animal host that maintains the pathogen; the third may be the arthropod or other vector. Man gets infected quite accidentally; he is not part of the natural cycle. By going into a place where animal infection is circulating, he himself becomes infected; usually, he is a dead end. In a few instances, infection acquired in this manner can be transmitted from man to man, creating a small outbreak or microepidemic. Plague, for example, may be picked up from a triad focus of plague bacillus, rat, and flea, then be transferred from man to man without intermediate fleas as in pneumonic plague.

An important point about "place diseases" is that they are occupational in nature. The incidence of such infections is determined by the behavior of persons in relation to a certain kind of habitat.

Life cycles of pathogens consist, on the whole, of two kinds. In the first, the pathogen alternates between a parasitic organism, such as a mosquito, tick, or flea, and a vertebrate host. The pathogen is parasitizing not one but two closely associated species, one of which feeds on the other as a parasite, forming a parasite-host relationship. Plague, again, affords an example. In the other kind of cycle, the pathogen alternates between another kind of feeding pair—the predator and its prey. Here, hydatid disease provides an example. The adult form exists in the predator which acquires infection by eating some sort of prey containing earlier intermediate stages of the pathogen. In hydatid disease, sled dogs, for example, prey upon caribou

* Second Paper of Tropical Medicine Symposium at USNH Oakland

infected with intermediate forms. Man may supplant the dog as predator by eating insufficiently cooked caribou meat. Man may also take the part of the caribou by picking up intermediate forms of the pathogen from close association with dogs or exposure to their excreta.

Two kinds of hosts serve as reservoirs for pathogens. The host responsible for maintaining the pathogen regularly in one particular place from year to year is the maintaining host. A host maintaining a pathogen directly transmissible to man should be called a reservoir host. A maintaining host may be more than a reservoir host, it may maintain a vector as well. Then, there are the incidental hosts, some of which are not concerned in the life-cycle of the pathogen. They may wander afar, distributing the infection or the vector to other places. Man, for instance, is usually an incidental host of no concern in maintaining either the vector or the pathogen—a dead end.

The clinician confronted by a patient returning from service or travel overseas must remain on the qui vive. Misdiagnosis may be disastrous. A careful history of possible exposure is essential. Swimming and fishing may result in exposure to leptospirosis; picnicking in forested waterside areas in Malaya is a notorious way of acquiring scrub typhus. Relapsing fever may be contracted in little cabins in the Sierra infested by small mammals. People who work with animals, such as veterinarians, may get leptospirosis. A single kind of infection, such as American trypanosomiasis, Chagas disease, may vary from place to place. In Texas, the insect vectors and the animal hosts are present but they occur in areas remote from man. Well built houses preclude domiciliation of bugs. In Honduras, bugs, animals, and badly constructed houses are present, but the climate is too wet to encourage sufficient transmission of the disease from animals to bugs for disease to flourish. In Costa Rica, bugs feed on horses; human disease is, therefore, rare. In South America, however, houses, badly constructed, are heavily infested with the vector; the maintaining hosts, armadillos and opossums, are closely associated with man. Human disease is rife; so much infection may occur in a given household that there is congenital transmission of disease from mother to child.

* * * * *

Malaria - Diagnosis and Treatment *

James H. Thompson MD, Assistant Clinical Professor of Medicine,
University of California Medical Center.

Wherever man and the Anopheles mosquito have shared a common environment, malaria has, down through the ages, had great military importance. The 82nd Airborne Division, for example, having become infected with malaria during the Sicily landings, suffered a relapse rate of nearly 30% during the 3 months staging period before the invasion of Europe. The stress of invasion caused as anticipated a further increase of morbidity rate of 25%. Even now, about 200,000,000 people in the world are estimated to be affected each year; some 2,000,000 die of the disease.

Mosquitoes inject sporozoites, tiny needle-like organisms, into body tissues; passing through the tissues, these attach themselves to liver cells to form cysts, schizonts. Over a period of weeks these, in turn, burst, liberating many merozoites which infect red blood cells. Now commences the asexual cycle in which ring forms go on to develop the blood schizont. This breaks with resultant hemolysis of red blood cells; chills and fever occur in the infected patient at this point. The merozoites then enter more red blood cells and a self perpetuating cycle is established. Since the merozoites do not reenter the liver, no more liver schizonts are formed unless more sporozoites are injected by another mosquito. Eventually, male and female gametocytes form in the red blood cells; these infect the mosquito. In the stomach of the mosquito the male gametocyte ex-flagellates; tiny male gametocytes enter the female gametocyte forming a slug-like appearing organism, the ookinete, a sort of kinetic egg which, entering the wall of the stomach, produces oocysts. Within these, motile sporozoites are formed which, upon rupture of the oocyst, migrate throughout the body cavity of the mosquito, some organisms reaching the salivary gland. One scientific observer thinks that they reach the salivary gland by force of gravity, since the anopheline mosquito stands head-down. At all events, the life cycle of the parasite is ready to recommence.

There are four varieties of human malaria, three of which are "tertian," a term referring to the occurrence of fever every third day. Plasmodium vivax causes a benign disease with tertian fever called "benign tertian." Plasmodium ovale, confined to Central Africa, produces a disorder which resembles benign tertian very closely. "Malignant tertian" is caused by Plasmodium falciparum; the organism is becoming known as Laverania falcipara. The last variety, Plasmodium malariae, causes "quartan" malaria, with fever every fourth day. Benign tertian malaria occurs in temperate zones with an isotherm of 60°; malignant tertian, falciparum, is tropical in distribution, requiring an isotherm of 70°.

The key to the diagnosis of malaria is a positive blood smear. In every case, it should be possible to demonstrate the organisms in the blood. Failure to do so is attributable to poor technic. Clean slides and fresh stains, Romanowsky, Wright, of Leishman, are essential. The thin smear is prepared as for any differential blood count. The thick smear is made by putting a drop of blood on the slide, smearing it about with a match or applicator stick, and letting it dry. Next, the hemoglobin is leached out with distilled water, leaving only malaria organisms, faint shells or erythrocytes, and a few leukocytes. Such a slide contains twenty to thirty thicknesses of blood; it is excellent for surveys, but thin smears should be made whenever thick ones are positive in order that the organism may be identified. One point must be emphasized: do not make the malaria slide during a chill! At this time merozoites, extremely difficult to see, are being released into the blood stream. Make smears immediately before and after chills.

Clinically, all forms of malaria share certain characteristics, fever, splenomegaly, rash, and in chronic cases, gallstones. The rash is not characteristic; urticaria, petechiae, or other forms may be observed. About one week after the mosquito bite, the hemoglobin drops slightly. Three or four

days later, low grade fever and general malaise appear. Gradually, thereafter, fever, enlarged spleen, and sometimes, rash develop.

Benign tertian malaria should be readily recognized. It is benign, tertian, and prone to relapse. Many relapses occur within the first month or so after treatment of the initial episode; the next group of relapses occur in 4 or 5 months. There follows a long period in which relapse is rare. By means of this phenomenon, the disease can "hibernate" during the winter of temperate zones. Mosquitoes die in freezing weather and do not transmit the malarial organism to their eggs. Persistence of the parasite in the blood stream of man enables the cycle to become reestablished when mosquito eggs begin to hatch in the spring. Sometimes, a person bitten in the fall may not have his first chill until the following spring! The elapse of time discussed, the latent period, concerns the cycle of the liver schizont. After 5 years, even untreated malaria "burns out."

Falciparum malaria is malignant; a disease of chills, it produces toxic effects in the red cells which cause clumping, thereby producing pathologic symptoms from clogging of small blood vessels. Cerebral involvement results in coma, mania, or convulsions. Such a disease is a true medical emergency; untreated patients promptly die. Gastrointestinal involvement may masquerade as obstructed bowel or acute appendicitis; where the disease is endemic, malaria slides should be made on all patients, particularly those on surgical wards. Treatment for malaria should be accomplished before any operation. Blackwater fever, another grave manifestation of falciparum malaria, is a hemolytic phenomenon somehow connected with the sensitivity of the organism to quinine treatment. The name derives from the appearance of the urine which contains large amounts of hemoglobin. The effect is that of an incompatible transfusion. Since malignant tertian malaria does not produce liver schizonts, its pattern of relapse is distinctive. The incidence of relapses is very high in the first few weeks after initial disease, then it dwindles away. The disease dies out in less than a year in untreated cases, provided they do not become reinfected.

In quartan malaria, fever occurs every fourth day; owing to persistence of liver schizonts, relapses may occur for many years—up to 20 or 30. The use of persons who have been infected with quartan malaria as blood donors is, therefore, inadvisable.

Do not be hasty, however, in making the diagnosis of malaria in a patient merely because he has lived in a region where the disease is prevalent. Do malarial smears. A number of diseases can cause chills, fever, malaise, and generalized aching!

Treatment of malaria is not static. New agents are constantly being developed; in a given situation, look them up in a current textbook. Quinine, a suppressive drug, interrupts the development of the parasite during the asexual cycle. It does not control the disease. Intravenous quinine is used, however, in the treatment of cerebral involvement by malignant tertian malaria. Five hundred mgm of quinine in 500 ml of dextrose in saline are administered thrice daily—a procedure often life-saving. Vasopressor drugs should be available to manage peripheral vascular collapse. Atabrine, developed by the Germans, is an excellent drug, though it tinges the skin yellow.

Despite German propaganda widely disseminated in World War II, it does not cause impotence! Chloroquine, most widely used today, is effective and non-toxic. The minimal dose is 2 tab stat in acute cases, one tab in 6 hours, then one tab daily for 4 or 5 days. Primaquine, effective against extra-erythrocytic forms of the parasite, is given as 2 tab daily for 14 days. Since it does not kill erythrocytic forms, the patient will have three or four more chills if this drug is given alone. Given to patients with hereditary 6-glucose-phosphate-dehydrogenase deficiency, mostly negroid, it will cause hemolysis. A combination of these last two drugs is ideal.

Eradication of malaria, the aim of the World Health Organization, is being attempted by extermination of mosquitoes with insecticides and by prophylactic medication of individuals. Chloroquine (Paludrine), primaquine, and "deraprim" are being used for the latter purpose. Here and there, as in Taiwan, the program is meeting with success.

* Third Paper of Tropical Medicine Symposium at USNH Oakland

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Diagnosis of Conversion (Hysterical) Reactions

Recent Literature and Case Reports

LT Gilbert C. Morrison MC USNR*. Proceedings of the Monthly Staff Meetings of the U. S. Naval Hospital, NNMC, Bethesda, Md., 1962 - 1963.

(Continued from 1 November issue of Medical News Letter)

Case Report. The following case history illustrates some of the problems and diagnostic considerations described in the introductory part of this paper: The patient, a young dependent wife, was transferred to the U. S. Naval Hospital, NNMC, Bethesda, Md., from another service medical facility. She had awakened one morning in the late summer of 1962 with pain in her right upper extremity, "paralysis" of the right hand, and an associated weakness in the right forearm. History revealed that the patient had suffered similar ill-defined "polyneuritis" of the opposite upper extremity in 1958 which had been extensively evaluated, and which subsided after 2 years of medical management. The first paralysis had occurred the day after she returned home from the hospital following the birth of her third child, now 5 years old. Following the onset of paralysis of the left arm in 1958, she had an extensive work-up at both a naval hospital and a university medical center.

The patient told of similar difficulties in her family. The maternal grandfather had some form of complete paralysis during the last years of his life before he died in his sixties during the patient's childhood. Her mother developed a paralysis of an upper extremity following the birth of her tenth child. The patient's sister, who married and subsequently divorced the patient's husband's brother, developed paralysis of an upper extremity which subsided spontaneously several months after the onset. A first cousin

developed a paralysis of an upper extremity at the approximate time of the patient's first episode in 1958 and was studied in detail at a civilian medical center. According to medical records, both the patient and her cousin were diagnosed as having an unusual form of familial neuritis; treatment included the use of corticosteroids and physiotherapy. The patient's first paralysis disappeared spontaneously soon after her husband's transfer from the interior of continental United States to a coastal duty station. She had full use of both upper extremities during the summer of 1962; the weakness of the right upper extremity occurred several weeks after her husband was ordered to duty outside the United States in the fall of 1962.

On admission to the Neuropsychiatric Service of the U. S. Naval Hospital, NNMC, the physical and neurologic examinations were essentially within normal limits except for a somewhat flaccid right hand and associated anatomically ill-defined neuromuscular abnormalities of the right upper extremity. Mental status examination revealed an alert coherent neatly dressed individual of stated age who described her symptoms in an indifferent manner, but who evidenced concern about a chronic problem with constipation. Memory was intact, although there were certain discrepancies between the patient's history of her illness and that contained in her accompanying medical records. Sensorium was clear. She denied emotional problems other than concern about constipation and inability to use her right hand. She denied recent changes in her life other than her husband's recent new duty assignment, and expressed the feeling that she had continued her usual activities, including active church work, care of her three children, a part-time job, and teaching and supervision of a Sunday School department. She acknowledged her calm acceptance of the disability of her right arm, but gave her past history of "polyneuritis" with spontaneous remission as the reason for her confidence that she would again have full use of the arm. She described a very happy married life and denied unusual concern about her husband's absence with the comment that her friends considered her a "good Service wife."

The following laboratory examinations were negative or essentially within the limits of normal: complete blood count, sedimentation rate, urinalysis, 24-hour urine examination for porphyrins and heavy metals, fasting blood sugar, serum calcium, blood cholesterol, alkaline phosphatase, serum protein electrophoretic pattern, protein-bound iodine, and neuromuscular stimulation-conduction tests administered in the Department of Electroencephalography.

Background information was obtained from the patient and her medical records. The fifth in a sibling group of ten, the patient was born in the Midwest. Her family was financially poor, relatively close, and fostered self-responsibility. Her father was a hard worker, but was able to provide his family with only the minimal necessities of life. He was concerned about bowel function and used mineral oil daily to maintain bowel regularity. He died of a heart attack during his 48th year while the patient and her family were on a tour of foreign duty. The patient was industrious, non-aggressive, and worked after school; although married during the 12th grade, she continued her studies and job and graduated from high school eleven years ago. Her husband who

was described as a "good military man and a good family man" had been promoted regularly during his 13 years of active duty. The patient had three children, now ages 11, 9, and 5 years.

The patient readily agreed to the use of hypnosis as a diagnostic measure and actively participated in the procedure. Four diagnostic hypnotic interviews were conducted and the following history was obtained. The patient recalled occasional "black-outs and fainting spells" beginning at age 13, and frequently associated with feelings of frustration with her home life or anger at her parents or siblings. Although she dated occasionally, her only serious relationship was with her future husband. She expressed strong feelings of anger and disappointment toward her father for being "self-centered," for not having taken better care of himself, and "for having caused his own death." She explained this by telling of his having been a union shop steward who, on the day of his death, had worked a normal 8 hours, walked a strike picket line for 4 hours, and then taken another man's place for an additional 4 hours when the other man did not show up. She described this with tears and clenched fists, occasionally beating both fists on the chair. She described disappointments in the boys she had dated and considered all men as "conceited and self-centered." The day following a hypnotic suggestion that she have a dream related to her paralyzed hand, she reported the following dream under hypnosis. She was standing in front of a former boy friend whom she described as "grinning" at her. She continued, "I was furious at him for some reason and there was a gun in my hand, and I began to shoot again and again and blew him into two parts. I then shot at the two parts until I blew them to pieces, and there was nothing left." On reporting the dream, she was uncertain as to which hand held the gun but commented, "It doesn't matter, I guess. The main thing is I wanted to shoot him to pieces."

She followed this with further expression of anger and rage at men for only being interested in sex, and expressed the feeling that no one had ever really known her or cared for her. She was advised that she could talk about the feelings while awake, but would remember only those details of the dream or trances that were acceptable to her.

The patient was found to have almost total amnesia for the dream, but talked openly about her feelings that she had always been let down by men and that she had no one to whom to turn in time of stress. She related event after event to support her conclusions and told, for the first time, of the feeling that her husband had failed to support her at one duty station during her on-going feud with the wife of one of her husband's friends. Following the birth of her third child, she had wished to remain in the hospital longer and felt that the doctors, hospital, and husband had again deserted her. It was in that setting that her first conversion appeared.

During the present hospitalization, no attempt was made to remove her symptoms, but instead, methods and patterns of behavior were suggested which could improve her life situation based on a more lucid understanding of her characteristic reactions to stress, personality type, and defenses available. A formulation of her personality would tend to focus more specifically on conflicts around expressing anger and ventilating angry feelings, aroused

when she felt that her own dependency needs would be unmet and that the significant men in her life were unreliable when she needed help.

She was seen for four interviews following the hypnotic sessions in a supportive and suppressive type of treatment with the suggestion that the use of her hand would return when she felt more comfortable in the expression of feelings and confidence in those around her. During the last week of hospitalization, she showed evidence of increased function of the hand and arm, and she was able to grasp with her fingers. She expressed the wish for further psychotherapy on return to her husband's home base; that was recommended to the patient and in the accompanying narrative summary.

Discussion

Conversion reactions find symptomatic expression only in the voluntary muscular and special sensory organ systems. Psychogenic symptoms occurring in other organ systems are classified as somatization reactions (organ neuroses, Alexander 1,2). Regarding symbolism of symptoms, Alexander contends that conversion reactions are characteristically symbolic in expression where somatization reactions "do not express any (primary) psychologic meaning." Dr. Philip Seitz has described an experimental method which offered an opportunity for investigating the problems of symbolism and organ choice in conversion reactions, and possibly also the psychodynamics of organ choice in somatization reactions. Dr. Seitz' method consisted of psychiatric study of patients with conversion reactions in order to ascertain the nature of emotional conflicts as well as the symbolic meaning and purpose of the symptoms. An attempt was then made hypnotically to substitute other symptoms for the original conversion reaction. It was found that certain psychodynamically and symbolically equivalent symptoms may replace the original conversion reaction, whereas other nonequivalent symptoms may not be substituted in this way. The principal disadvantages of that experimental approach appeared to be the extended length of time required for a study of each individual case, and the inescapable fact that the psycho-physiology of hypnosis itself remains obscure.

"It was possible to replace psychogenic chorea with blushing and with circumscribed areas of excoriated pruritus. Further hypnotic experiments resulted in spontaneous symptom substitutions: nausea and vomiting occurred when warts were suggested hypnotically, anesthesia of the scalp developed in place of suggested alopecia areata. When urticaria was suggested as substitute for weeping, coryza and eczematous dermatitis appeared instead. Suggested vesiculation of the hand resulted in 'accidental' injury in precisely the designated area. The results of these exploratory experiments tended to confirm Alexander's hypothesis concerning symbolism and organ choice in conversion reactions. This experimental approach can also provide a method for studying these problems in somatizations."

In summary, then, a review has been made of recent literature and research considerations in conversion reactions: a case has been discussed which manifests many of the emotional and clinical problems frequently met in this condition. At this time, the most widely accepted explanation for the

conversion reaction is that anxiety, resulting from instinctual impulses and repressed elements in the personality, is dispelled by being "converted" into symptoms manifested in the voluntary musculature or special sense organ systems.

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- * Doctor Morrison is a staff member of the Neuropsychiatric Service, U. S. Naval Hospital, NNMC, Bethesda, Md.

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MISCELLANY

SUBMARINE MEDICINE

USAF Residents Visit Submarine Squadron TWELVE

On 1 and 2 October 1963, nineteen residents in Aviation Medicine from the U.S. Air Force School of Aerospace Medicine visited Submarine Squadron TWELVE at Key West, Fla., for orientation in operational and medical problems encountered in submarine duty. They were given a "welcome aboard" and briefing by CAPT Walter A. McGuinness USN, Commander of Submarine Squadron TWELVE. LT J. C. Rivera MC USN, the squadron medical officer, assisted by LT J. E. Harvey MC USNR, the medical officer from the Underwater Swimmers School, conducted the orientation with lectures, motion pictures, discussions, and tours.

The highlight of the second day's visit came when, divided into two groups, the residents went to sea for a day of submarine operations. One group, escorted by Doctor Rivera, went aboard the USS PICUDA (SS-382); the other, escorted by Doctor Harvey, went aboard the USS SEA POACHER (SS-406). The Air Force residents left Key West with new concepts of the problems in Submarine Medicine and operations.

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Notice to Medical Service Corps Officers

All MSC officers (2300, 2302, and 2305) are again reminded to review BUMED INSTRUCTION 1520. 12B concerning the Medical Service Corps training program. Officers who desire to be considered for the Naval School of Hospital Administration class convening August 1964, or for full-time outservice training in Fiscal Year 1965, are reminded to submit individual letter requests furnishing data outlined in the above instruction. Requests must reach the Bureau of Medicine and Surgery prior to 1 January 1964 to be considered for the Fiscal Year 1965 training program. Personnel are also reminded to submit academic transcripts with their requests unless they are positive that such evidence has been submitted previously to BuMed.

—MSC Division, BuMed

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A Note on Budget Operations

The Navy Comptroller Review for September 1963 contains an article entitled "How Does the New Program Change Control System Affect Budgeting?" This is recommended reading to all whose duties involve budgeting or who otherwise have an interest in the subject.

Distribution of the Review has been made to all major commands and the publication should be available locally. If not, a copy may be obtained, while the supply lasts, from:

Comptroller of the Navy (NCS-3)
Navy Department
Washington 25, D. C.

—Comptroller Division, BuMed

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Heart-Lung Machine Developed for Navy. A simple cheap and easily operated pump-oxygenator or heart-lung machine has been developed for the Navy by the Massachusetts Institute of Technology. The machine, which must undergo clinical testing before it goes into general use, weighs only 50 pounds. This makes it particularly adaptable for use aboard naval ships and in small field hospitals. The low cost of the machine—about \$1000—will make it available to many hospitals which cannot normally afford machines such as this. The pump-oxygenator is highly reliable and does not require electricity to operate, thereby removing the danger from power failures and explosion hazards.

One purpose of this research project was to design a heart-lung machine that would prolong the period of safe bypass of the heart and lungs. A byproduct of this research program was development of a new infusion pump for use in treatment of internal disease. This pump is already being produced and used. —New York (AFPS)

Human Rabies Death. The first human rabies death in the United States for 1963 was reported from Alabama in September. A 52-year old woman from Aliceville in Pickens County, Ala., died with classic symptoms of rabies in the University Hospital, Birmingham on 4 September after a 7-day course of illness. The clinical diagnosis was confirmed by the Alabama State Health Department laboratory after examination of brain tissue taken at autopsy. Investigation revealed that the probable source of the infection was a nonvaccinated family dog which had been fighting with another dog on May 30. The family dog died on August 10, was disposed of and, therefore, was not available for laboratory examination. (Reported by Dr. Ira L. Myers, State Health Officer, Alabama State Health Dept) DHEW PHS, M & M Wkly Rep 12(36): 13 September 1963.

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Surgeons General of the Past

(Seventeenth in a series of brief biographies)

Presley Marion Rixey, 17th Chief of the Bureau of Medicine and Surgery and 13th Surgeon General, was in reality the father of the modern Medical Corps of the U. S. Navy. His term extended from 1902 until 1910 and spanned the greater portion of President Theodore Roosevelt's administration. A recent naval historian described the relationship between President and Surgeon General in one fitting sentence: "Roosevelt was for a great Navy, Rixey was for a fine Medical Department; they were both successful."

Admiral Rixey's term of office was marked by important advances in the Navy Medical Department. Included among them were renovation and modernization of all naval hospitals and the construction of new ones at Puget Sound, Washington (1903), Canacao, Philippine Islands (1903), Las Animas, Colorado for tuberculosis patients (1906), Great Lakes, Illinois (1907), and Guam (1910). Medical supply depots were established at Brooklyn, New York, San Francisco, California, and Cavite, Philippine Islands which proved to be invaluable during World War I.

No Surgeon General had as fully understood the needs of the Medical Department as Surgeon General Rixey. Through his tireless efforts the strength of the Medical Corps was doubled.

One of his first acts was to establish the U. S. Naval Medical School in what is now Building 2 of BuMed (formerly the U. S. Naval Observatory). At that activity, new medical officers could receive postgraduate instruction in services pertaining particularly to naval medicine with, of course, strong emphasis on tropical medicine which is of utmost importance to U. S. Naval medical officers today. He also sent medical officers abroad to study tropical medicine since the United States had recently acquired tropical territories from Spain in the Greater Antilles, South Pacific, and in the Philippines. He instituted the practice of assigning medical officers to important civilian medical institutions for postgraduate training in leading professional specialties, such as internal medicine, otorhinolaryngology, ophthalmology, surgery, psychiatry, and the basic medical sciences. In 1908, Surgeon General Rixey established the U. S. Navy Nurse Corps. Repeatedly, he tried to establish a Dental Corps, but his dream was not fulfilled until 1912 when success came during the administration of Surgeon General Charles F. Stokes, his successor.

Admiral Rixey served as personal physician to two presidents. He was White House physician when President McKinley was assassinated. His report of that tragic event constitutes an important medical historical record. He was also the personal physician of President Theodore Roosevelt.

Admiral Rixey was born at Culpeper, Virginia, July 14, 1852, and died on June 17, 1928. —(Prepared by E. P. Kuhn JO2 USN)

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IN MEMORIAM

RADM Bernard S. Pupek MC USN (Ret)	23 September 1963
CAPT Clay A. Boland DC USNR (Ret)	29 July 1963
CAPT William R. Burns DC USN (Ret)	14 August 1963
CAPT Clarence C. Tessman DC USN	10 August 1963
CDR Herman E. Hoche MSC USN (Ret)	21 September 1963
CDR John J. K. Hughes DC USN (Ret)	15 July 1963
LT Winston R. Parsons MSC USN (Ret)	9 July 1963
LTJG Claud I. Patton MSC USN (Ret)	30 May 1963
Wayland, Annie A. NC USN (Ret)	28 July 1963
CMSW Calvin H. Johnson USN (Ret)	26 July 1963
CWO W2 Verdell M. Cook MSC USN (Ret)	5 August 1963
CWO 2 Frank (N) Tousic USN (Ret)	16 June 1963

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Naval Medical Research ReportsU. S. Naval Medical Research Institute, NNMC, Bethesda, Md.

1. Heat of Reaction of Polyriboadenylic Acid and Polyribouridylic Acid: MR 005.03-0301.09 Report No. 1, June 1962.
2. Susceptibility of Certain Japanese Mosquitoes to Plasmodium Gallinaceum and Plasmodium Berghei: MR 005.09-1030.02 Report No. 7, August 1962.
3. Response of Blood-Fed Aedes Aegypti to Gamma Radiation: MR 005.09-1401.01 Report No. 4, November 1962.
4. Prevention of Brain Damage During Profound Hypothermia and Circulatory Arrest: MR 005.12-0002.04 Report No. 13, April 1963
5. Peripheral Cold and Central Warm-Reception Main Origins of Human Thermal Discomfort: MR 005.03-0050.02 Report No. 5, April 1963.
6. Cercaria Vs Schistosomule (Schistosoma Mansoni): Absence of the Pericercarial Envelope In Vivo and the Early Physiological and Histological Metamorphosis of the Parasite: MR 005.09-1031.01 Report No. 12, June 1963.
7. Trematode Parasites of Fishes from Egypt. Part VII. Orientocreadium Batrachoides Tubangui, 1931 (Plagiorchioidea) from Clarias Lazera, with a Review of the Genus and Related Forms: MR 005.09-1601.01 Report No. 6, June 1963.
8. Trematode Parasites of Fishes from Egypt. Part VI. The Metacercaria of Euclinostomum Heterostomum (Rudolphi, 1809) Trevassos, 1928 (Clinostomidae), with a Review of the Genus: MR 005.06-1606.01 Report No. 5, July 1963.
9. Pulp Damage by Induced Inflammation: MR 005.12-5000.01 Report No. 15, July 1963.

U. S. Naval Medical Research Unit No. 3, Cairo, Egypt

1. Haemaphysalis kutchensis sp. n., a Common Larval and Nymphal Parasite of Birds in Northwestern India (Ixodoidea. Ixodidae): MR 005.09-1402.3, February 1963.
2. Leishmaniasis in the Sudan Republic. 14. Leishmanin Skin Testing in Upper Nile Province: MR 005.09-1603.4, July 1963.

U. S. Naval Medical Field Research Laboratory, Camp Lejeune, N. C.

1. Myocardial Oxidative Metabolism and Alkali Cation Content Following Burn Trauma: MR 005.12-7020.1.6, October 1963.

U. S. Naval Aviation Medical Center, U. S. Naval School of Aviation Medicine, Pensacola, Fla.

1. Role of the Otolith Organs in the Perception of Horizontality: MR 005.13-6001 Subtask 1 Report No. 80, March 1963.
2. Sensitivity to Stimulation of the Semicircular Canals During Weightlessness: MR 005.13-6001 Subtask 1 Report No. 84, May 1963.
3. Influence of Event Salience on Response Frequency in a Ten-Alternative Probability Learning Situation: MR 005.13-5001 Subtask 12 Report No. 4, July 1963.
4. Cumulative Effects of Repeated Exposure to High-Intensity Tones upon recovery of Auditory Sensitivity: MR 005.13-2005 Subtask 3 Report No. 1, Aug '63.

U. S. Naval Medical Research Unit No. 2, Taipei, Taiwan

1. Immunological Studies on Trachoma: MR 005.09-1201.12, September '63.

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FROM THE NOTE BOOK

White House Naval Medical Officer Awarded Honorary Degree. Rear Admiral George G. Burkley, Medical Corps, U. S. Navy, Physician to the President, was awarded an honorary degree of Doctor of Science by his Alma Mater, the University of Pittsburgh, at its annual Fall Convocation on October 2, 1963. This honor was bestowed in recognition of Admiral Burkley's outstanding achievements in the fields of medicine and public service.

Admiral Burkley, a native of Pittsburgh, received both his Bachelor and Science and Doctor of Medicine degrees from the University of Pittsburgh, the MD in 1928. A specialist in Internal Medicine and Cardiology, he interned at Pittsburgh's St. Francis Hospital and practiced in that city until he entered the Navy as a Lieutenant Commander, Medical Corps, on 4 November 1941, one month before the attack on Pearl Harbor. Five years later, on August 26, 1946, he transferred from the Naval Reserve to the Regular Navy and, in 1948, attained the rank of Captain.

In February 1961, Doctor Burkley, while holding the rank of Captain MC USN, was appointed Assistant Physician to the President, later becoming Physician to the President. In August 1962, President John F. Kennedy

promoted him to the rank of Rear Admiral. Before assuming his White House position, Admiral Burkley had served as Medical Officer at the Camp David, Maryland presidential retreat during the administration of President Dwight D. Eisenhower. During that time, his primary duty was that of Commanding Officer, U.S. Naval Dispensary, Washington, D. C., with the Camp David job as a collateral assignment.

Admiral Burkley has also been A Fellow in Internal Medicine at the Mayo Clinic, Rochester, Minn., and served as Chief of the Medical Service at U. S. Naval Hospitals in Memphis, Tennessee; Charleston, South Carolina; Portsmouth, Virginia; and Newport, Rhode Island.

—Adapted from NAVNEWS, Washington, D. C., 1 October 1963

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Recommended Reading List

CONFLICT IN THE SHADOWS: THE NATURE AND POLITICS OF GUERRILLA WAR by James Eliot Cross. New York, Doubleday & Company. \$3.95.

A former Assistant Secretary of the Navy for Research and Development and World War II OSS man, now an associate of the Institute for Defense Analysis, reviews modern unconventional warfare and its tactics of subversion, insurrection and revolution. But this is in no sense a tactical handbook. Taking a philosophic approach, Mr. Cross examines the political, economic and military context in which most guerrilla warfare takes place and makes recommendations for steps to be taken by the U. S.

LADY LUCK: THE THEORY OF PROBABILITY by Warren Weaver. New York, Doubleday & Company (Science Study Series). \$1.45 (paperbound)

A lighthearted book about thinking—specifically, thinking about uncertainty—and present-day appli-

cations of the 300-year-old probability theory. Dr. Weaver, who was decorated by U.S., England, and France for his World War II work on anti-aircraft fire-control devices and homsights, believes that the type of thinking that one learns in probability theory is of the highest importance, that no other type of thinking can deal with many problems of the modern world.

THE LIVING SEA by Jacques-Yves Cousteau with James Dugan. New York, Harper & Row. \$6.50.

The famous undersea explorer recounts recent voyages and new discoveries of the oceanographic ship *Calypso* and its divers in the Atlantic, the Mediterranean and the Red Sea. Cousteau's reports on new depth-exploring techniques and devices, such as the DS-2 Diving Saucer, are of prime interest to the Navy. Numerous photographs contribute to a fascinating book.

—Enclosure to SecNavInst 1520.5

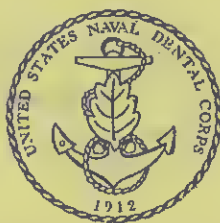
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ATTENTION: Radioisotope Techniques and Nuclear Medicine Course

Class #15 New Inclusive Dates: 13 January 1964 - 6 March 1964

Commencing with Class #15 scheduled to convene on 13 January 1964, the duration of the above course will be 9 weeks instead of 12 weeks.

Requests should be forwarded to the Bureau in accordance with BUMED INSTRUCTION 1520.8 at least 6 weeks prior to commencement of the requested course. —Training Branch, Professional Division, BuMed.

DENTAL**SECTION**Operative Effects on Adult Dental Pulp

By Marvin B. Weiss, Maury Massler and John M. Spence. Dental Progress 4(1): 6-15, Oct. 1963.

"This investigation was designed to determine the pulpal responses of older teeth to operative procedures and to correlate clinical and histologic findings. Experimental cavities were cut at various speeds, with and without a coolant, to various depths, and with different types of cutting tools. Evaluation was in terms of immediate effects and subsequent healing."

The investigators prepared cavities in 225 teeth of patients 34-70 years of age. The teeth were caries-free and were scheduled for extraction in conjunction with other treatment. Histologic evaluations of the pulps under these various techniques for cavity preparation indicate that the clinician is wise to protect the pulp of these teeth, in older individuals, as he now protects young teeth.

Recommendations by the operator include: (a) the use of adequate water-spray coolant is mandatory; (b) the carbide bur is the most effective in cutting and least injurious; (c) burs lose their sharpness more rapidly than most practicing dentists realize; (d) a consistent finding of burned dentine in the corners of the cavity floor suggests that a round bur replace the inverted cone and that the handpiece be held at an angle so that the coolant may reach the cutting edge; and (e) that temporary fillings of zinc oxide and eugenol reduce pain following operative procedures.

NOTE: This well-written report of an excellent clinical investigation is a positive contribution to improvement of dental treatment.

—Dental Division, BuMed

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Porcelain Veneers Bonded to Metal Castings*

This comprehensive report on the major factors associated with the veneered porcelain technic brings into proper relationship manufacturers' claims and the evaluations by independent investigators and users. Included in the article are: Tooth preparation, microbond and ceramco alloy castings, preparation of castings for veneering, soldering, vacuum firing, matching natural tooth shades, and cementation.

With the technics now developed, building and bonding the porcelain veneer and fracture of the veneer need not be listed as problems. The authors summarize their evaluation of this veneer bonding technic in this manner:

"bonding porcelain veneers are now highly satisfactory in more respects to a greater number of people than they were four or five years ago, are still only partially successful in quite a number of cases, and frustrating to the inept and less persevering segments of dentistry and technicians' craft."

*(Practical Dental Monographs, March 1963, John F. Johnston**, George Mumford, Roland W. Dykema)

** Professor and Chairman, Dept. of Fixed and Removable Partial Prosthodontics, Indiana University School of Dentistry.

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Local Anesthesia

Leonard M. Monheim, M. S., D. D. S., University of Pittsburgh, School of Dentistry, Pittsburgh, Pa. The Journal of Prosthetic Dentistry 13(5): 933-939, Sept. -Oct. 1963.

"The control of pain is one of the most important aspects of the practice of dentistry. Local anesthesia is an important segment of this aspect. Unfortunately, too many dentists look upon local anesthesia as the "mere insertion of a needle to deposit a solution which will make the tissues numb." This is indeed unfortunate as the proper use of local anesthesia requires a more constant use of the basic sciences than almost any other phase of dental practice."

In the complete article, Doctor Monheim discusses local anesthesia and the agents, anesthetic and vasoconstrictor, available to the dental practitioner. He describes the purpose and action of each component. The dentist who is familiar with the principles presented will be able to choose the local anesthetic solution to fit the needs of each individual patient and situation, rather than attempt to make the patient fit the available solution.

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Personnel and Professional Notes

Rear Admiral Kyes Elected to Office in ADA. Rear Admiral F. M. Kyes DC USN, Assistant Chief of the Bureau of Medicine and Surgery (Dentistry) and Chief, Dental Division, was elected Third Vice-President of the American Dental Association at the ADA convention held in Atlantic City, New Jersey, 14-17 October 1963. He was installed on the last day of the convention to serve for one year. In this capacity, he will meet with the Board of Trustees at regular sessions where he will have a voice in matters of concern to that

body. Admiral Kyes attended the convention as a delegate and representative of the Surgeon General.

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Navy Dental Corps to Participate
in 10th Annual Marshall Islands Survey

Captain Harvey W. Lyon DC USN, Head, Dental Division, Naval Medical Research Institute, NNMC, Bethesda, Maryland, will represent the Navy Dental Corps by participating in the 10th Annual Marshall Islands Survey. These studies, sponsored by the Atomic Energy Commission and directed by Captain Robert A. Conard MC USNR, of the Medical Department, Brookhaven National Laboratory, are concerned with the long-term effects of total body irradiation in human beings. Valuable data regarding certain intraoral findings obtained during the 5th Annual Survey will be correlated and compared with the results of the forthcoming 10 year study.

Initial exposure of the inhabitants of Rongelap Atoll, Marshall Islands, occurred following detonation of a 15 megaton thermonuclear test device at Bikini Proving Grounds in February 1954. Because of an unusual shift in winds, varying quantities of fallout matter were deposited on and in the vicinity of four inhabited Marshall Islands. Inhabitants of Rongelap, 64 in number, received the heaviest exposure to fallout, an estimated 175 roentgens total body gamma irradiation, contamination and subsequent beta burns of the skin, and some internal absorption of radioactive material. Shortly after removal of the exposed Marshallese to Kwajalein, the Task Force Commander requested the Department of Defense and the U. S. Atomic Energy Commission to organize a medical team for the care and study of these inhabitants. The Naval Medical Research Institute and the Naval Radiological Defense Laboratory possessed staff members of exceptional experience in this field, and within 8 days post-detonation, a specialized medical team, comprised of these staff members and augmented by personnel from the AEC Division of Biology and Medicine and the Armed Forces Special Weapons Project, had arrived to continue the treatment and study of the irradiated Marshallese populations.

Dental studies of these patients five years after exposure to the primary irradiation showed the following findings:

- (1) Similar degrees of caries activity were observed in irradiated and non-irradiated children.
- (2) Although the prevalence of periodontal disease was practically identical in both the irradiated and non-irradiated Marshallese, the extent of periodontal destruction was greater in the irradiated Rongelap population, which may or may not be related to factors such as leukopenia and lower tissue resistance and the presence of pre-existing periodontal disease.
- (3) Children born of irradiated parents, including those children in utero at time of initial exposure, and irradiated children, ages 6-18, showed no evidence of any morphological effects on oral tissues from total

body irradiation when compared with the non-irradiated control groups.

Intraoral findings obtained in this 10th annual survey will be compared with the above information.

Navy Dental Corps Exhibit Wins at ADA Convention. The Navy Dental Corps exhibit, Local Anesthesia in Dentistry was awarded first prize among the scientific exhibits at the American Dental Association Convention held in Atlantic City, New Jersey, 14-17 October 1963. The popular exhibit was monitored by Captain S. E. Tande and Lieutenant J. S. Lindsay, of the Naval Dental School, Bethesda, Maryland.

Navy Dental Corps Represented at ADA Convention. There was a large number of Navy Dental Corps participants at the ADA convention held in Atlantic City, New Jersey, 14-17 October 1963. Among the presentations were:

Video Tapes For Closed Circuit Television

<u>Participants</u>	<u>Presentations</u>
RADM F. M. Kyes Dental Division, BUMED	Research on Increased Use of Dental Assistants
CAPT C. A. Ostrom Dental Division, BUMED	Stannous Fluoride for Caries Prevention in Young Adults
CAPT G. H. Rovelstad Naval Dental School, NNMC	Prevention of Dental Caries and Dental Research in Education
CAPT J. Flocken Naval Dental School, NNMC	Correct Pontic Design
CAPT T. R. Hunley and CAPT L. M. Armstrong, NDS, NNMC	The Modern Cavity Preparation
CDR F. J. Kratochvil Naval Dental School, NNMC	The Effect of Partial Denture Design on Abutment Teeth
CAPT W. Lyon NMRI, NNMC	Repair of Osseous Defects by Bone Marrow Transplants
CDR K. Hoerman NMRI, NNMC	Stress and Gingival Tissue Changes
CAPT F. Losee DRF, Great Lakes, Ill.	Current Research in Caries-Free Naval Recruits

Clinical Lectures

Participants

CAPT T. R. Hunley
Naval Dental School, NNMC

CAPT L. M. Armstrong
Naval Dental School, NNMC

Presentations

Isolating Complicated Class V
Cavities

Restoring Complicated Class V
Cavities

Scientific Exhibits

CAPT S. E. Tande and
LT. J. S. Lindsay, NDS, NNMC

Local Anesthesia in Dentistry
(First Prize)

CAPT L. S. Hansen and
H.H. Scofield in collaboration with
MAJOR J. Cornyer, USAF, and Dr.
H. Archard, Jr., USPHS

Lesions of the Lips (AFIP)
(Second Prize)

CDR G. H. Green
Naval Dental School, NNMC

A Practical Diagnostic Test
for Dental Caries

Table Clinic

CAPT W. D. King
NavSta, Charleston, S.C.

Compound Reinforced Alginate
Impressions

Operative Dentistry Symposium

CAPT G. W. Ferguson
NavSta, Newport, R.I.

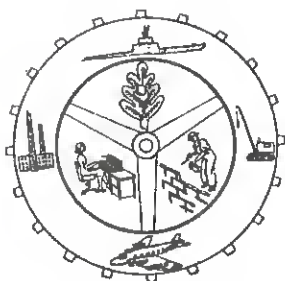
Silicate Restorations

In addition, CAPT. S.E. Tande, NDS, NNMC, introduced The Dental Assistant - Outpatient Oral Surgery, a recently produced Navy training film.

Reenlistment Statistics for Dental Technicians. The following reenlistment statistics for dental technicians were recently released by BUPERS for Fiscal Year 1963 as of 30 June 1963.

First Term	16.6%
Career (over four years)	88.9%
Reenlistment Rate for June 1963	36.3%
Reenlistment Rate for FY 1963	47.1%
Overall Navy Reenlistment Rate for FY 1963	47.4%

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OCCUPATIONAL MEDICINE

X-33 Water Repellent*

The Food and Drug Administration warned householders and others against use of "X-33 Water Repellent", an extremely flammable masonry water proofer. FDA Commissioner George P. Larrick urged consumers who have purchased the product to return it unopened to their dealers immediately because of the extreme risk of flash fires and explosions.

Mr. Larrick warned householders against trying to destroy or dispose of the product themselves without first consulting their local fire department.

The Commissioner said that the X-33 product as manufactured up until about two months ago has a flash point (point of ignition) at a temperature below -40 degrees F. The product manufactured since then has been changed and has a flash point of 73 degrees F.

However, Mr. Larrick said, since the labels on the cans do not indicate which product is which and because of the extremely flammable nature of the old product, all cans of X-33 Water Repellent should be returned to the dealer. The user runs the risk of possible death or severe injury because of the highly hazardous nature of the old product.

Steps are being taken to remove the extremely flammable water proofer from the market, Mr. Larrick said. It is distributed by the Wilmington Chemical Corp., of Chicago, Ill.

FDA made over 20 seizures of the X-33 product following reports of injuries from flash fires in Rochester, N. Y. last October. In all, eight injuries and one death have been reported due to X-33 explosions. The latest case involved the death of a housewife and severe burns to her husband last May 28. The housewife painted her basement walls with X-33. When she finished she sat down to rest. The windows were reported opened and no pilot lights were on. Suddenly an explosion and flash fire occurred. Her husband, on the floor above in an attached garage, was severely burned and the roof was blown off the garage. The housewife died two days later. FDA said the cause of ignition could not be determined.

FDA said the product first appeared on the market early in 1962. The wrap-around paper label was inadequate under the Federal Hazardous Substances Labeling Act. The firm devised a new sticker label to send to dealers for attachment to the cans. The 20 odd seizures involved cans of X-33 which failed to bear the new sticker label.

It became apparent, however, that even the sticker label was not enough warning to protect consumers against the product. In a letter to the Wilmington firm, Malcolm R. Stephens, director of FDA's Bureau of Enforcement, declared: "We have reservations about the desirability of lay people attempting to use it in the home. Because, however, the statute is a labeling law and does not give us authority to rule products off the market irrespective of any labeling that may be employed we have given consideration to the question of a revised label for the article."

The revised label would include as a part of a prominent and conspicuous warning statement, the following: "The potential hazard from the use of this product is so great it is recommended the user, before applying the material, consult with a professional expert in handling such highly hazardous materials to minimize the chance of personal injury or property damage."*—U. S. DHEW, Food and Drug Administration, Washington, D. C. , October 11, 1963.

* * * * *

Acute Trichloroethylene Narcosis

E. O. Longley, MB, BS, and R. Jones, BSc, Sydney, Australia, Archives of Environmental Health 7(2): 249-252, Aug. 1963.

Introduction. At the factory in question, large tanks are entered periodically to resurface exposed metal joints with a bituminous paint applied with a brush.

Each tank is porcelain lined, 9 feet in height and 15 feet long, and has 1 entry port 15 x 16 inches positioned 2 ft. 6 in. from ground level. They occupy most of the floor space of a poorly ventilated basement area, maintained at approximately 32° F. In order to dry out the tanks prior to painting, 4 infrared heaters are placed inside and switched on 16 hours prior to painting; they are left on during painting.

On the day of the accident, 2 experienced painters, who had both carried out this work for 8 years, commenced work at 8 a. m. , one man entering the tank and painting for 30 minutes while the other remained outside. Each 30 minutes the men changed places. It was normal procedure for the painter inside the tank to wear an air-supply respirator at all times. One air-supply respirator was issued for use by the inside man, and it was stated that the first employee to enter the tank used it for a short period. Air flushing equipment attached to the top of the tank was not used, as this caused moisture from condensation on the surfaces to be painted.

At about 9 a. m. the use of the air-supply respirator was discontinued, as the operator believed the air supply to be contaminated. Detailed tests of the supplied air on the day following the accident and on 2 subsequent days did not show any contamination. A full-face respirator fitted with an all-purpose canister suitable for organic vapors was substituted for the remainder of the work.

At noon, the painter resting outside the tank observed that the man inside the tank was becoming increasingly incoherent, with a staggering gait and the appearance of drunkenness. The former person ordered his fellow worker to leave the tank and instructed him to get some fresh air. While the affected person walked about outside, the other man entered the tank "for a few minutes" to clean up prior to taking a meal break. It has not been established whether he put on a respirator or not.

Some time later the man outside the tank, having partially recovered, returned to the tank, looked inside, and saw his mate sprawled apparently unconscious on the bottom near an area of spilled paint. Immediately, without waiting to put on a respirator, he started to crawl through the manhole to rescue his friend. While halfway through the manhole, after taking only 1 or 2 breaths inside the tank, he fell forward unconscious head first into the vessel with his legs still protruding from the manhole.

Fortunately for both men, these protruding legs were noticed by another worker at about 12:40 p. m., and both men were removed from the tank by 12:55 p. m. Neither was wearing a respirator.

Both regained consciousness before arriving at the hospital but were somewhat confused and disoriented for some time. The 2 men reported for work the next day and have lost no time since the accident.

Investigations. Officers of the New South Wales Division of Occupational Health were called in the following day to investigate this accident which so nearly resulted in a double tragedy.

It was quickly established that the most likely cause was vapor from the paint used. The latter contained 75% trichloroethylene and had been thinned with an equal amount of thinners containing 98% trichloroethylene.

The materials stored in the tank were of a nontoxic nature. As the tank was a very confined space situated in a basement area which was poorly ventilated, the possibility of oxygen deficiency and carbon dioxide excess was also considered as contributing factors, as both men had complained of "air-hunger."

Preliminary tests were commenced 24 hours after the accident. At this stage the paint was dry, as was the area of paint spilled on the bottom of the tank. The 4 infrared heaters had been switched off after the accident. Trichloroethylene estimations were carried out with a Davis Halide Meter. In the center of the tank 2 ft. from the floor, the trichloroethylene concentration was 120 ppm.

To simulate the conditions resulting from an area of spilled paint, 3 shallow trays of prepared paint were then placed on the bottom of the tank. After some minutes, the trichloroethylene concentration had risen to more than 1,000 ppm beyond the range of the Davis Halide Meter.

On the same day at 8:30 p. m. the oxygen level was found to be 19.5% and the carbon dioxide level 0.7%. The trichloroethylene level near the trays and the manhole had risen to 2,390 ppm by this time, as determined from evaluated "grab" samples and the combustion method over platinum.

Because these preliminary tests were inconclusive, it was decided to duplicate as closely as possible the conditions inside the tank leading up to and at the time of the accident and then to carry out a further series of tests.

An exactly similar tank in the same confined area was used for the final tests. Four infrared heaters were switched on 16 hours before testing was begun. On this occasion painting inside the tank began at 10:45 a. m., and 2 painters worked inside alternate shifts of 30 minutes. At 12:50 p. m. 3 trays containing paint and thinners (approximately 1 pint) were placed on the bottom of the tank to simulate spillage. Apart from the fact that an air-supply respirator was used throughout the painting, conditions approximated as closely as possible those leading up to the accident. Painting ceased at 1:20 p. m.

Trichloroacetic Acid estimations were carried out on the urine of the 2 affected men and on one other subject who took part in the final investigation. The No. 3 substitute painter was detailed to carry out the work during the tests, as No. 1 subject (the painter who first became unconscious) elected not to work in a confined space.

Protective Devices. In theory, the full-face respirator with an all-purpose organic vapor canister attachment should give adequate protection for a period of at least one-half hour in an atmosphere containing 1% trichloroethylene, at a rate of 16 liters per minute. The respirator was tested after the accident by passing trichloroethylene at a concentration of 0.3% through the canister. Complete absorption occurred, indicating that the canister was still effective.

In practice, its use could be attended by difficulty due to misting of the goggles and restriction of head and neck movement in a confined space. Because of this, early intoxication of both operators may have occurred due either to removal of the facepiece or to the fact that it was ill-fitting.

An air-supply respirator should be worn to avoid such mishaps. Furthermore, as the use of protective equipment is subject to human error, respiratory protection should be regarded as a last resort, and every effort should be made to reduce the vapor concentration from a toxic to a safe level by the use of non-toxic substitute solvents.

Comment. According to McCord (1932), the narcotic action of trichloroethylene appears at a concentration of about 10,000 ppm. L. T. Fairhall (1957) is less specific and states that severe narcosis is produced only by high concentrations and prolonged exposure.

In this accident, both men suffered acute unconsciousness, following 2 hours of earlier exposure and mild intoxication, after which they reentered an atmosphere containing an estimated 3,000 ppm of trichloroethylene. In one instance unconsciousness occurred after working about 10 minutes; in the case of the second employee unconsciousness apparently occurred immediately as he entered the tank in the second occasion.

Conclusions.

1. Acute unconsciousness can result from the inhalation of trichloroethylene in a concentration of 3,000 ppm if the subject has had an immediate earlier exposure resulting in a mild intoxication.
2. This could explain the almost instant unconsciousness which has occurred when degreasing tank operators have entered a tank for some purpose.

3. No prodromal symptoms were described, so no warning is received by a subject that unconsciousness is imminent.
4. The accident described further underlines the necessity to wear a safety rope when entering a confined space. In this case, this precaution had been neglected.

Ahlmark and Forsman have intimated that a limit of tolerance of trichloroacetic acid in urine be fixed at 20 mg. per liter. They also state that effects occur in about half of the persons excreting 40-75 mg. per liter and in almost all those excreting 100 mg. or more. Levels of trichloroacetic acid in urine have been observed by the authors (in subjects chronically exposed) as high as 310 mg. per liter, and apart from some headache these subjects had no complaints. After unconsciousness, urinary trichloroacetic acid levels of the 2 men were 55 and 37 mg. per liter 24 hours after the accident, and in one case the level had risen to 187 mg. per liter 48 hours after the accident. This suggests a degree of tolerance in those chronically exposed.

Summary. Two cases of acute unconsciousness due to trichloroethylene at an estimated breathing zone concentration of 3,000 parts per million are described. This concentration is consistently lower than previously quoted figures.

Two painters working inside a large tank, and using paint containing trichloroethylene solvent, were found unconscious. Both became mildly intoxicated during their first 4 hours of work and had left the tank to recover in the fresh air. Reentry into the tank was followed by acute unconsciousness, in one case almost instantly.

Editor's Note. This article illustrates the dangers of working in confined spaces without proper respirators and ventilation. It should be understood that the vapor of any volatile solvent may, in a confined space such as a tank or closed compartment, reach concentrations that will anesthetize. To understand this type of accident and to know how to prevent them, one must recognize the difference between chronic and acute toxicity. A solvent may have a comparatively low order of toxicity, and yet be an effective anesthetic. For example, trichloroethylene and methyl chloroform are considered to be much less toxic than carbon tetrachloride. Trichloroethylene and methyl chloroform (trichloroethane) are used in great amounts in the Navy as substitutes for the far more toxic carbon tetrachloride. Accidents that occur in confined spaces in the use of trichloroethylene, methyl chloroform, or any other volatile metal cleaner or paint thinner are easily prevented by the use of respirators selected to protect against the amount of vapor expected. In general, in a tank an air supplied respirator is needed when volatile solvent vapors are being involved during painting or cleaning rather than a mechanical cartridge respirator, because it is usually impractical (a) to remove the vapors fast enough, and (b) the vapors in being removed usually are passing through the breathing zone of men in the tank. Whenever work is underway in a confined space, be it in a tank, closed compartment or room, any liquid that vaporizes regardless of its degree of toxicity can snuff out life either by anesthetizing or asphyxiating.

— Occupational Health Division, BuMed

Confidentiality of Occupational Health Records

By John N. Gallivan, MD, East Hartford, Connecticut, Archives of Environmental Health 7(4): 469-472, Oct. 1963.

To confide means to entrust. The word confidential implies a relationship based on trust. In order to get full benefits from certain relationships, persons must freely, frankly, and fully expose themselves to others. It is difficult for a person so to expose himself. Fear that the second person could not be trusted to keep intercommunications confidential would destroy the effectiveness of certain relationships. When such relationships are considered by society to be worthy of special fostering, confidential communications originating in them are given special protection under the law. The nature and extent of protection may vary not only as regards different types of relationships, but also as pertains to the same kind of relationship in different localities. Confidential communications between client and attorney are more extensively and consistently shielded by law, for example, than are those between patient and physician.

The betrayal of a patient's confidence may be grounds for revocation of the physician's license. It may render the physician liable for damages to the patient. It may be punishable as a breach of professional ethics. In certain judicial proceedings, a physician may be prohibited from revealing information obtained from the patient. Most physicians are aware of these possibilities, but many are uncertain in specific situations as to what can and cannot be revealed. Such uncertainty is particularly noticeable in situations wherein a third party has an obviously valid interest. Guidelines to the confidentiality of occupational health records are needed not only for specialists in occupational medicine but for any physician who at some time deals with the health of employees in relation to their work. Some practical guidelines are offered below.

Communication Must Originate in Patient-Physician Relationship.

Society's intent, in protecting confidential communications between patient and physician, is to foster the relationship itself. The mere fact that a person tells or shows something to another person, and expresses or implies that the second person is to keep the matter confidential, ordinarily is not sufficient in itself to invoke the law's special protection. So long as the second person tells the truth, he probably has a good defense against a claim for damages, even when what he broadcasts causes harm or embarrassment. It is the special circumstance of the patient-physician relationship which makes the physician liable even when he discloses only the truth. The concern of medical ethics also is with the patient-physician relationship. Therefore, the following is offered as the first guideline: The primary criterion of the confidentiality of a patient's disclosure is the origin of such disclosure in a patient-physician relationship.

Acceptance of Professional Services Creates the Relationship. The following quotation from a text on medico-legal matters has been commonly

quoted in the courtroom: "When a physician makes, on behalf of a prospective employer, a pre-employment physical examination or one for a life insurance company, or for a court, or for a party in litigation adverse to the examinee, the examinee is not his patient; the physician-patient relationship does not arise."

As recently as December, 1961, a New Jersey court specifically cited the above pronouncement and flatly disagreed with it. The case was one in which the defendant physician had performed, for a prospective employer, a pre-employment examination of the plaintiff. The defendant physician argued that there was no contractual relationship of doctor and patient between him and the plaintiff. The court concluded that the relationship was "readily implied and did exist."

In a much-used volume of "American Jurisprudence" may be found the following clearly stated rule:

...when the professional services of a physician are accepted by another person for the purposes of medical or surgical treatment, the relation of physician and patient is created... A physician may accept a patient and thereby incur the consequent duties although his services are performed gratuitously or at the solicitation and on the guaranty of a third person... The fact, even, that a third person sends a physician to examine a patient for the purpose of benefiting the third person only, and the patient not at all, may not affect the case, for the patient always has the right to refuse treatment; and when professional assistance is accepted, such acceptance creates the practitioner, the physician of the patient, and subjects him to the resultant liabilities.

This rule implies no denial of the possible existence of a relationship between an employer (or other third party) and a physician out of which the employer (or other third party) may benefit. The important point is that a patient-physician relationship may exist simultaneously with whatever other relationships the physician may have. The trend among courts appears to be in the direction of this view. Therefore the following is offered as a second guideline:

When a prospective or actual employee is offered and does accept the professional services of a physician, a patient-physician relationship is created regardless of whether or not the physician is furnished by an employer and regardless of whether or not the purpose the employer has in mind, in furnishing the physician, is that of benefiting solely the employer or other third party.

Some, But Not All, Physician's Services Are Professional Services. A physician, in an occupational health program, may instruct employees in safe ways to utilize the body in various activities, in the use of personal protective equipment, or in rescue and first aid procedures. He may be asked to translate or explain information inscribed by another physician on an insurance claim form or in a "To Whom It May Concern" letter. Although the professional training of the physician may be quite helpful in such activities, not every activity of that sort would be classifiable as a professional service such that

acceptance by the employee would mark the creation of a patient-physician relationship.

On the other hand, it may be possible for associates or assistants to inaugurate professional services under the direction of a physician prior to his actually coming into direct contact with the patient. A patient-psychiatrist privilege statute enacted in Connecticut in 1961 clearly includes any person who assists the psychiatrist in diagnosis or treatment.

In an excellent explanation of the Connecticut law which appears in a recent bar journal, it is made quite clear that this statute applies in a physician's office, a home, a hospital, a clinic, or other facility. The Connecticut statute defines the word "psychiatrist" by itemizing certain qualifications, among which appears the following: "or a person reasonably believed by the patient to be so qualified." Borrowing from this last phrase, the following is offered as a third guideline:

When a physician offers medical examination, diagnostic, personal health counseling or treatment services, or services reasonably believed by the patient to be professional medical services, these are professional services such that acceptance by the patient marks the creation of a patient-physician relationship.

Every State Grants to Patient Some Control of Confidentiality. There are two general types of control (of confidential matters arising from the patient-physician relationship) granted to the patient under law: (1) an authorization to prevent his physician from disclosing to a court matters which the patient prefers to keep secret, and (2) a right of action against his physician for embarrassment or harm to the patient arising out of a breach of confidence.

All states except some of those in a two-state-wide strip along the Atlantic and Gulf coasts have adopted statutes granting the first type of control. Although legislative and judicial tinkering has resulted in a great diversity of statutes and interpretations and although these laws provide protection specifically for the judicial or quasi-judicial setting, such laws do lend support and criteria for the second type of control (i.e., action by the patient against the physician). In the extrajudicial setting, there is neither judge nor attorney nor even the patient himself in a position to prevent disclosures by the physician. Nevertheless, the right of action against a physician for unwarranted disclosure is a secondary type of control because it may cause the same physician or others to think twice before repeating the mistake. Every state grants this secondary type of control to the patient. Therefore, the following is offered as a fourth guideline:

Statutes and legal interpretations vary widely, but every state grants to the patient some control of the confidentiality of disclosures made by him in a patient-physician relationship.

Employers Want Workability Prognoses, Not Medical Diagnoses. One of the surest ways in which a physician can protect himself against a breach of confidence action is: obtaining authorization signed by his patient to disclose information of such and such a medical care period to such and such a person or agency. Examples of authorizations to disclose complete information may be found in an excellent brochure available from the American Medical Assn.

Although such authorizations are simple to execute and do protect the physician, there are potential disadvantages especially if a long term blanket consent form is utilized.

The knowledge that he has signed or will be asked to sign an all-out disclosure authorization may cause the patient to conceal information that is very important to the effective performance of the physician's services. Patients may resist attempts to elicit confessions of mental aberrations, sex problems, drug addiction, abortions, convulsive disorders, or emotional problems arising in the home or work, especially with their jobs or reputations at stake. The disclosure by name of many disorders, which are not ordinarily considered shameful and which may not affect the employee's workability, may cost a man his job or job opportunity through unnecessary disclosure of specific diagnostic terms and details.

Several types of report forms using codes or "occupational vernacular" or "placement vernacular" have proved to be effective and satisfactory substitutes for disclosures of specific details of the examinee's medical history and for reports submitted in medical diagnostic terms. Requests by the employer for medical opinion regarding causes of abnormal absenteeism, poor work, unruly behavior, lack of interest, etc., can be answered in simple terms that indicate whether or not there is a medical basis and whether or not and when improvement can be expected.

Whenever possible, it is a good idea for the physician to tell his patient what he proposes to report to the employer or other third party, and to obtain the patient's oral consent to such release. This holds true whether or not a blanket consent form has been signed. In some cases involving professional procedures, courts have construed blanket consent forms to permit only the procedures which were orally agreed upon. Extrapolations of such opinions to disclosure authorizations could occur.

It is difficult to compose a general rule which would help a physician to strike a happy medium between being a trust-breaching informer, on the one hand, and a ridiculous Don Quixote defending the confidentiality of non-confidential matters, on the other hand. The following is offered as a fifth guideline:

Other than to meet his legal obligations: when an employer asks for an employee's diagnosis, he really wants a prognosis as to the employee's workability, in occupational or placement vernacular and not in precise medical terminology.

The Law May Compel Physician to Reveal. Quite generally there are legal requirements to report communicable diseases, occupational diseases, workmen's compensation injuries, injuries caused by dangerous weapons, proximate and immediate causes of death, etc. Furthermore there are statutes, case laws, or regulations requiring reports for investigations such as those made by labor departments or criminal law enforcement agencies. Moreover, arbitrators and judges may require reports when the employer must respond to challenges, under the law or labor union contracts, as to the validity of activities or judgments of physicians serving in his occupational health program.

Physicians must obey the law. Therefore, the following is offered as a sixth guideline:

When he is required by law to reveal something that transpires in a patient-physician relationship, a physician must comply.

Patient's Welfare May Compel Physician to Reveal. It may be the physician's duty to warn particular individuals who have been exposed to a communicable disease. When a physician believes the welfare of other individuals or of the community necessitates disclosure, he ordinarily has a right to make such disclosures if he has reasonable grounds for his belief, if he makes no further disclosure than is reasonably necessary under the circumstances, and if he acts in good faith and without malice. No set rule can be laid down to cover all the various situations in which disclosure is required in order to protect the patient, his associates, or the community. In such cases, the physician should know the law of his commonwealth concerning privileged communications and should act as he would desire another to act toward one of his own family in like circumstances. The following is offered as the seventh guideline:

When the welfare and the protection of the patient, his intimate associates, or the community require the physician to reveal something that transpires in a patient-physician relationship, a physician should reveal only such information only to such persons as the law permits and as are necessary to the purpose.

The confidentiality of the patient-physician relationship is protected by law and medical ethics, but many physicians lack practical guidelines, particularly for situations wherein a third party has an obviously valid interest. Some guidelines to the confidentiality of occupational health records are offered for use by any physician who at some time deals with the health of employees in relation to their work.

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Editorial: AMA-ERF Medical Education
Loan Guarantee Program*

Journal of Occupational Medicine 5(5): 266-267, May 1963

Financial obstacles to medical training can be formidable. Costs of a long period of medical school, internship, and residency can weigh heavily in the scales of decision against careers in any branch of medicine. The potential effects of this deterrent on the health needs of a growing population are obvious.

Too often the tendency is to sit back and let the government tackle major problems. It may seem the easy way out, but in the long run it can prove difficult and costly. When voluntary effort and initiative demonstrate that private enterprise can do the job, such effort and initiative should be given every encouragement.

Since March 1962, the American Medical Association has sponsored a program which guarantees low-interest bank loans for medical students, interns,

and residents. It is a program which brings the system of private finance within the reach of these young trainees--and more than 6,000 of them already have grasped the opportunity. It is a program, furthermore, which has been sustained by private voluntary contributions--from physicians throughout the country, from medical societies, from charitable foundations and from a small number of industrial corporations.

Corporate giving is the area to which the program must turn for increasing support in the future. The growing volume of the program requires new sources of substantial giving. Here it seems that physicians can be of meaningful help by interpreting the program and its implications to the officers of companies who may be asked to consider a corporate contribution.

How does the loan program work? Under an agreement with the banking community, AMA's Education and Research Foundation (AMA-ERF) guarantees loans of up to \$1,500 per year to a student, intern or resident in training and in good standing in an approved medical school or hospital. The guarantee consists of posting \$1 in a fund for every \$12.50 in credit the bank extends.

The program is not a subsidy. The borrower pays interest on his loan, but no payment of either interest or principal is required until five months after the borrower completes his full training, giving him a chance to establish himself in practice or employment. At that time, he may pay off his obligation or take as long as 10 additional years to repay in monthly installments. If he chooses to make installment payments, interest is charged on the unpaid balance monthly.

In effect the AMA is giving students a businesslike way of paying for their own training with money they will earn in later years. A few facts will underscore the need for this program:

Medical students, on the average, have to spend more than twice as much as arts and science graduate-students for tuition, books, fees, and equipment.

More than half of the arts and science graduate-students receive stipend income, from scholarships, fellowships and assistantships--exceeding \$3,600 over 4 years, including 40% who are getting \$7,200 or more. But half of the medical students get no stipend whatsoever, and only 8% get more than \$3,600 over a 4-year period.

The fact is that many students who do enter medical school must depend to a large extent upon their parents for support.

By enabling students to borrow a substantial portion of the cost of their training and living expenses, the AMA-ERF program offers promise of opening the application field to otherwise qualified young people who lack the necessary family resources to embark on medical training.

Although the program is just a year old, scores of borrowers have written to AMA-ERF telling the difference the loans already have made in their lives.

To some students the program has meant continuing in school instead of dropping out a year or more to work; to others it has meant more concentration on studies and less time in outside employment during the school year.

To all it has meant a greater peace of mind and a sense of pride in paying their own way. (* Does not represent the complete editorial.)

RESERVE**SECTION**

Follow These VA Tips
For Speedier Service

Every year the VA receives some 200 million--that's right, 200 million pieces of mail. Far too many of these communications cannot be properly identified because veterans and dependents merely sign their names--and names are not enough.

Almost all of the 30 million names in VA's master index file are duplicated. As might be expected, there are more than 300,000 Smiths and almost 200,000 Johnsons, but most other names are duplicated scores of times.

A veteran's claim number (C-number) and insurance number are his alone. If you include these numbers in correspondence, you will receive speedier service and save the time and cost of additional correspondence.

Here are a few more suggestions which should help you receive quicker, more efficient service:

1. When first seeking a benefit, bring along a copy of your discharge, if available.
2. When writing about benefit claims, address your correspondence to the VA regional office in your area--and don't forget your claim ("C") number.
3. When writing about insurance, address the VA district office to which you mail your premiums--and include your insurance policy number.
4. Report changes of address promptly to both VA regional and district offices.
5. Always give your full name and address.
6. You can save time and money by paying your VA insurance premiums quarterly, semiannually, or annually.
7. If you receive VA compensation or pension checks, you can also save time, money--and avoid a lapse--by having your VA insurance premiums deducted from your monthly benefit checks.
8. Be sure your list of insurance beneficiaries is up to date; VA can pay claims only to the persons you name as your beneficiaries.

For assistance with any problems relating to VA benefits or insurance, write or visit your nearest VA office.

— From "The Naval Reservist," BuPers, Oct 1963

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Navy Ensign 1915 Medical Program
(continued)

Qualifications for Ensign

3. Educational

- a. Should be within 120 days of completion of all academic work required for enrollment in medical school.
- b. Should be in attendance or have been accepted for and be within six months or less of the date of the next entering class at one of the American or certain of the Canadian medical schools accredited by the Council on Medical Education and Hospitals of the American Medical Association, including approved schools of the basic medical sciences in the United States and Canada. Applications cannot be accepted from students who attend a medical school in a foreign country other than Canada. Appointment of students who will attend a Canadian school will depend upon the proximity of the school to a U. S. Navy Recruiting Station.
- c. Must NOT have commenced the final year of medical school.

4. Professional

- a. Applicants are required to establish professional fitness and aptitude for the naval service through interviews and a review of college and employment records.

5. Physical Standards

- a. Should be found physically qualified for appointment to commissioned status in accordance with established regulations.

Service Obligations

1. Each regular registrant making application for appointment as Ensign 1915 U. S. Naval Reserve signs an agreement to accept a superseding appointment in the Medical Corps; to retain such commission in the Naval Reserve for six years following superseding appointment and to serve on active duty for two years. Students who have an obligation for active military service acquire no additional obligations by participation in the Ensign 1915 Program, unless they assume extra obligated service because of participation in the Senior Medical Student Program.
2. In all spheres of medical practice in the Navy the medical officer finds ample opportunities to advance himself in his profession. This advancement will naturally depend on his innate ability and the diligence with which he carries on his work. The Navy is eager to see its medical officers advance to the limit of their capabilities--encourages and promotes their careers with every facility available. There is no reason why any naval medical

officer of ability may not find his place among the leaders of the profession anywhere in the United States or abroad. Physicians entering upon a naval career become, upon appointment, Naval officers with the responsibilities and privileges of their rank. In any organization, military or otherwise, privileges are accorded to individuals commensurate with their responsibilities. In civilian practice the responsibilities and privileges of the intern differ from those of the resident, chief of service, associate or full professor. In the Navy such differences are expressed in rank and seniority and professional accomplishments receive recognition irrespective of rank just as in civilian practice a younger physician is accorded the recognition of his specific attainments irrespective of age or position. All organizations, military or civilian, operate under rules and regulations that govern the action of individuals within such organizations. Civilian medical practice may be considered an "organization"--and the physician, under codes of ethics and traditions, accommodates himself night and day to whatever exigencies, real or imagined, are imposed by his patients.

(to be continued)

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